Appendix C
Definitions

GLOSSARY OF TERMS AND PHRASES

The following terms and phrases are unique or critical to this manual and the TPP process.

Analysis Data Implementor
Chemists, biologists, industrial hygienists, and other technical specialists who contribute to the analysis data implementor perspective are responsible for identifying suitable analytical methods and requirements necessary to satisfy data needs within the data collection program. Analysis data implementors participate throughout the TPP process with their primary responsibilities occurring during Phase I and Phase III.

Areas of Interest
Site areas or locations of particular interest to individual team members based on their perspective (e.g., the segment of a stream used for recreation represents an area of interest to the risk data user; the discharge pipe and stream outfall from a water treatment plant represent areas of interest to the compliance data user). Areas of interest are established during Phase I, refined during Phase II, and considered throughout the TPP process.

Compliance Data User
Legal counsel, regulatory specialists, industrial hygienists, and other technical personnel who contribute to the compliance data user perspective are responsible for identifying the data needs associated with evaluating and monitoring the legal and regulatory compliance of a site or site activities. The compliance data user participates throughout the TPP process with his/her primary responsibilities occurring during Phase I and Phase II.

Conceptual Site Model
A conceptual site model (CSM) is a written or pictorial representation of the environmental system at a site and the biological, physical, and chemical processes that affect contaminant transport.[5] The TPP team should develop a preliminary CSM during Phase I activities as a simple model of the relationships between chemicals detected at a site and potential exposure pathways to site receptors. A preliminary CSM could also be developed for the purposes of evaluating site compliance conditions; planning a removal or remedial action; or evaluating potential contributions to a site by other PRPs. Each data user perspective will reference the site's CSM during Phase II efforts to identify data needs.

Customer
The customer is a party, organization, or sponsor that depends upon the professional services, expertise, and advice of a project manager and technical personnel. Within the TPP process, a customer is the decision maker who is funding the project and responsible for achieving site closeout. Typical USACE customers include U.S. Department of Defense agencies, the U.S. Environmental Protection Agency in some instances, and Support for Others (internal and external USACE customers). The customer is a key member of every TPP team and should be encouraged to participate throughout the TPP process. The customer's primary decision making and input occurs during Phases I and IV.

Data Collection Options
Data collection options represent different groups of data needs and their associated sampling and analysis methods. Data collection options provide a simple mechanism to document the "basic" data needed for the current project; "optimum" data that is cost-

effective and prudent to collect for future executable stages; and any "excessive" data that someone besides the data users imposes or mandates in excess of the data needed by data users. Data collection options are considered during Phases I and II, developed and documented during Phase III, and used by the team during Phase IV to design the data collection program for a site.

Data Collection Program
The principal goal and outcome of the TPP process is the development and design of a data collection program that is to be subsequently implemented at a site. The team designs a data collection program throughout the TPP process which culminates in the documentation of the data collection program during Phase IV.

Data Implementor
Technical personnel (e.g., chemists, engineers, geologists, scientists) who contribute to the data implementor perspective are responsible for identifying sampling and analysis methods suitable for satisfying the data users' data needs. Data implementors are generally referred to as either a sampling or analysis type of data implementor. Both sampling and analysis types of data implementors participate throughout the TPP process with their primary responsibilities occurring during Phase I and Phase III.

Data Need Worksheet
Several data user-specific data need worksheets are provided in Appendix F for documenting data needs. The data need worksheets can be used in part to determine data needs. Data need worksheets, or other similar forms, can be prepared by each data user perspective to specify environmental data needs. Data need worksheets are prepared by data users during Phase II and subsequently used by data implementors during Phase III.

Data Quality
Data quality is a simple term used to represent several complex characteristics of a data need. A data user's quality requirements include these characteristics related to each data need:

- Contaminant or characteristic of interest;
- Media of interest;
- Required sampling areas or locations, and depths;
- Number of samples required (e.g., fixed number or dynamic estimate; probabilistic or non-probabilistic basis);
- Reference concentration of interest or other performance criteria (e.g., action level, compliance standard, decision level, design tolerance);
- Sampling method [e.g., discrete or composite sample; sampling equipment and technique; quality assurance/quality control (QA/QC) samples]; and
- Analytical method (e.g., sample preparation, laboratory analysis method and quantitation limit, laboratory QA/QC).

Data quality requirements can only be established by the data user ultimately using the data. Data users establish data quality requirements based on a level of uncertainty scientifically acceptable for the intended data use(s) and accepted practices within a particular field (e.g., science, engineering, legal).

Most characteristics of data quality requirements for a data need are defined by the data user when identifying each data need during Phase II. During Phase III, data implementors define the remaining data quality requirements for each data need when they determine appropriate sampling and analysis methods. During Phase IV, data quality requirements become a large part of the planning information documented in a data quality objective statement for each data need.

Data Quality Objectives (DQOs)
DQO statements are the culmination of many TPP activities. DQOs become formal documentation of the data quality requirements. Effective use of DQOs yield data of known quality, documentation of the planning process, and a benchmark to determine if data meet specified objectives. DQOs produced as a result of the TPP process meet EPA's definition of a DQO and should be project-specific statements that describe the intended data use(s), the data need requirements, and the means to achieve them. DQOs documented as a result of the TPP process should include the following nine data quality requirements:

1 Project objective(s) satisfied;
2 Data user perspective(s) (i.e., risk, compliance, remedy, or responsibility) satisfied;
3 Contaminant or characteristic of interest identified;
4 Media of interest identified;
5 Required sampling areas or locations, and depths identified;
6 Number of samples required (e.g., fixed number or dynamic estimate; probabilistic or non-probabilistic basis);
7 Reference concentration of interest or other performance criteria (e.g., action level, compliance standard, decision level, design tolerance) identified;
8 Sampling method [e.g., discrete or composite sample; sampling equipment and technique; quality assurance/quality control (QA/QC) samples] identified; and
9 Analytical method (e.g., sample preparation, laboratory analysis method detection limit and quantitation limit, laboratory QA/QC) identified.

Data Quality Objectives Worksheet
The DQO worksheet provided in Appendix F is a tool useful for documenting the nine data quality requirements of a DQO produced during the TPP process.

Data User
Data users are technical and other personnel responsible for engineering, scientific, and legal evaluations that are the basis for site decisions. Progress to site closeout typically requires the collaborative involvement of many technical disciplines to represent data user perspectives of risk, compliance, remedy, and responsibility. Data users are responsible for determining data needs required to satisfy the project objectives. Data users participate throughout the TPP process with their primary responsibilities occurring during Phase I and Phase II.

Decision Maker
Decision makers (i.e., customer, PM, regulators, and stakeholders) each have specific interests in the outcome of site-related activities. The most important responsibility of each decision maker is to participate in the team's efforts to identify and document project objectives during Phase I. As deemed appropriate by the customer, the regulators and stakeholders may also contribute to TPP activities during Phases II through IV.

Dynamic Work Plan
A dynamic work plan is a work plan that includes some decision logic in advance of field activities, including sampling that is directly contingent on the findings of earlier sampling. Dynamic work plans empower field personnel to decide on-site to modify field efforts as site conditions are better understood during data collection efforts. Dynamic work plans can only be successful if the entire team agrees with the plans and the plans include when and how communications will occur between field

personnel and the customer, regulators, and stakeholders, as appropriate. Dynamic work plans are most commonly used when expedited site characterization approaches are being employed and field personnel are using real-time data acquisition and interpretation methods.

Environmental Data
Environmental data are site-specific environmental-type data (e.g., chemical, biological, physical) that must be obtained from the field or by laboratory analysis of a sample collected in the field. Environmental data, as referred to in this manual, should not be mistaken for "site information." Environmental data needs are identified by data users during Phase II and are typically listed on data need worksheets provided in Appendix F.

Executable Stage
During Phase I the team identifies all possible executable stages to site closeout for each unique site. Depending on the size and complexity of the site, several executable stages may be necessary and appropriate to proceed from site investigation to site closeout. Scoping executable stages is based on an overall site approach and a current project focus that reflect the effects of project constraints, project dependencies, and options for project execution.

Expedited Site Characterization
Expedited site characterization (ESC) is a methodology that utilizes in-field decision making, dynamic work plans, and real-time data acquisition and interpretation.[12] Although ESC has several similarities to the TPP process, the entire TPP process should be used to develop the data collection program that will be fulfilled using ESC methodology. ESC should be considered as an execution option during Phase I, and planned for throughout Phases II, III, and IV when deemed appropriate for site activities.

Field Screening/Field Analytical
Field screening and field analytical methods can be a useful tool to characterize site contaminants while reducing analytical costs. The team could plan to conduct some field screening activities concurrent with Phase I, II, or III TPP efforts to refine their understanding of a site prior to design of a data collection program for the current executable stage of site activities.

Media
Air, surface water, sediment, soil, and groundwater are the most common types of environmental media at a site. Media can be any naturally occurring environmental material that can be affected by contamination at a site.

Phase I MFR
The Phase I MFR (memorandum for record) is a document that should be prepared at the end of Phase I. Appendix F provides a worksheet for preparing a Phase I MFR during Phase I of the TPP process. A Phase I MFR should clearly document the current project and associated project objectives, within the context of the overall site approach, for the current executable stage of site activities. The MFR should clearly indicate the customer's goals (i.e., concept of site closeout, schedule requirements, and site budget), as well as site constraints and dependencies. The PM is responsible for distributing the Phase I MFR to all team members at the end of Phase I. If a customer's site budget or schedule changes, the changes should be documented and then communicated to the entire team using technical memorandums or addendums to the Phase I MFR. In accordance with the applicable quality management plan, the PM should have independent technical or management personnel review the Phase I MFR to ensure it is effective and complete.

Point of Compliance (or Compliance Point)
A compliance point is the location, identified by the compliance data user perspective where a specific data need exists due to an applicable or relevant and appropriate requirement. Typical points of compliance include the outfall of a permitted water treatment facility or the atmospheric discharge point of an air treatment system.

Presumptive Remedies
Presumptive remedies are preferred technologies for common categories of sites, based on remedy selection and implementation experience. A suitable presumptive remedy can accelerate the planning process; provide consistency in remedy selection; reduce the remediation schedule and expenditures; and achieve earlier site closeout.

Project Manager (PM)
Within the TPP process, the PM is the decision maker responsible for leading the team's TPP efforts, progressing towards site closeout, and meeting the customer's expectations. The PM's leadership role in the TPP process is most apparent during Phases I and IV. During Phases II and III, the PM should function more in a support role by responding to information needs of the technical personnel who are representing data user and data implementor perspectives.

Project Objectives
Project objectives are the short- and long-term site issues to be addressed and resolved at a site. Satisfying or resolving the project objectives, based on the underlying regulations or site decisions, are the purpose of all site activities. Identifying and documenting the project objectives for a site during Phase I can be relatively straightforward since most project objectives are a consequence of the governing statutes and applicable regulations.

Project Objectives Worksheet
The project objectives worksheet provided in Appendix F is a tool useful for documenting and managing project objectives throughout the TPP process.

Regulators
Federal, state, and local regulators are decision makers who may have jurisdictional authority to directly affect site closeout. Regulators may specify standards, criteria, and guidance to be followed during site characterization and remediation. Regulators may also establish schedules under Federal Facility Agreements that can stipulate penalties for missed milestone dates. Regulators with possible jurisdictional authority should be included in TPP efforts to ensure efficient progress to site closeout. In particular, regulator input is prudent during Phase I and portions of Phase IV. As deemed appropriate by the customer, regulators may also be welcomed to contribute during Phase II and Phase III of TPP activities.

Remedy Data User
Design and construction engineers, hydrogeologists, technicians, and other technical personnel who contribute to the remedy data user perspective are responsible for identifying the data needs associated with the remedy or specific remedy components for site closeout based on the remedy stage of the site and the executable phase of the project. The remedy data user participates throughout the TPP process with his/her primary responsibilities occurring during Phase I and Phase II.

Responsibility Data User
Legal counsel, attorneys, and legal perspective personnel who contribute to the responsibility data user perspective are responsible for identifying data needs associated with potential litigation of the appropriate apportionment of responsibility for site investigation and closeout activities. The responsibility data user participates throughout the TPP process with his/her primary responsibilities occurring during Phase I and Phase II.

Risk Data User
Risk assessors; industrial hygienists; chemists; geologists; scientists; occupational health and safety specialists; and other technical personnel who contribute to the risk data user perspective are responsible for identifying the data needs associated with evaluating current and future risk (human health or ecological) associated with site conditions, site investigation activities, and site remediation conditions. The risk data user participates throughout the TPP process with his/her primary responsibilities occurring during Phase I and Phase II.

Sampling and Analysis Planning Worksheet
The sampling and analysis planning worksheet is a tool that can be used to document data collection plans, but not directly useful for the purpose of identifying sampling and analysis methods for site activities. The sampling and analysis planning worksheet is intended to provide data implementors a method to organize and communicate the recommended sampling and analysis methods to obtain the data needed within each data collection option (i.e., basic, optimum, and excessive). Sampling and analysis planning worksheets are prepared by data implementors during Phase III and are used during Phase IV design of the data collection program. A sampling and analysis planning worksheet is provided in Appendix F.

Sampling Data Implementor
Engineers, geologists, chemists, and other technical specialists who contribute to the sampling data implementor perspective are responsible for identifying suitable sampling methods and requirements necessary to satisfy data needs within the data collection program. The sampling data implementor participates throughout the TPP process with his/her primary responsibilities occurring during Phase I and Phase III.

Scope of Work
A scope of work (SOW) is a narrative description of work to be performed by a contractor. Several SOW sections are typically used as an acquisition instrument with information sufficient to enable offerors to submit proposals and the resultant contractor to perform at levels that meet the government's needs. A SOW includes criteria such as required work products, work quality standards, budget parameters, schedule or delivery requirements, and specific performance requirements.

Sensitivity Limits
Sensitivity limits are the capability of a method or instrument to discriminate between measurement responses representing different levels of a variable of interest. Analysis and sampling data implementors work together during Phase III to evaluate sensitivity limits to ensure that appropriate sampling and analysis methods are selected to obtain the data needed by the data users. Data implementors can use the sampling and analysis planning worksheet provided in Appendix F when selecting the methods and setting method detection limits and quantitation limits.

Site Approach
A site approach is an overall strategy for managing a site from its current condition to the desired site closeout condition. Identification of a site approach during Phase I enables a team to be better prepared to manage and consider the effects of outside constraints and proposed changes to data collection programs. Critical elements of a site approach include a preliminary conceptual site model, the project objectives, other stakeholder perspectives, the probable remedies, and some definition of executable stages to site closeout.

Site Closeout
Site closeout is achieving the "walk away goal," or the final condition of a site, as envisioned by the customer. The efforts to define site closeout involve understanding the customer's vision for the site and translating his/her vision into a descriptive statement that can be used by the team. The scope and meaning of site closeout is defined by the team during Phase I and then provides focus to all personnel during execution of the TPP activities and subsequent site activities.

Site Information Data
Site information data is specific site information that is not obtained as the result of environmental field work. Site information data needs are typically noncontaminant-related site information obtained from the site's owner (e.g., "as-built" drawings, geological information), technical or site-specific literature (e.g., precipitation and temperature trends; current and future zoning; material or equipment availability; site operations information) or an engineering-type site visit (e.g., topographic survey; utility conflicts and service connections; site access). Preliminary site information data needs are generally identified during Phase I with additional site information data needs identified by data users during Phase II. Appendix F provides a Site Information Worksheet useful during TPP efforts. It is the PM's responsibility, working with the technical personnel, to decide how and when site information data needs will be fulfilled.

Site Information Worksheet
The Site Information Worksheet is provided in Appendix F for documenting and managing site information needs throughout the TPP process.

Stakeholders
Stakeholders with interests in site activities and site closeout could include current property owners, restoration advisory boards, and any number of other individuals or special interest groups. The TPP process advocates that concerns and ideas of stakeholders be considered during TPP efforts to contribute to efficient progress to site closeout. Phase I of the TPP process includes a deliberate effort to determine and consider community interests and the perspectives of stakeholders. A Phase IV activity encourages the team to prepare and distribute fact sheets, when appropriate, for communicating the data collection program to interested parties including stakeholders. As deemed appropriate by the customer, various stakeholders may also be welcomed to contribute during Phase II and Phase III of TPP activities.

Summary Table of Data Collection Options
A summary table of data collection options is provided in Appendix F as a tool useful for documenting an overview or summary of data collection options. The summary table of data collection options is not directly useful for identifying basic, optimum, and excessive types of applicable data collection options for a site. It provides data implementors a tool and method to communicate the fundamental aspects of each

data collection option (i.e., number of samples, level of effort, order-of-magnitude cost, and related considerations). The team will use the summary table when considering the data collection program tables and designing the data collection program for a site during Phase IV of the TPP process. A summary table of data collection options is prepared by data implementors at the end of Phase III.

Team Information Package

A team information package is an informal collection of existing site information that is compiled early during Phase I for reference by the entire team. Common components of a team information package include existing site data, reports, illustrations, or drawings; the customer's concept of site closeout; the customer's schedule and budget requirements; all correspondence from regulators; an index of the project file and/or administrative record, if available; and a list of the individuals on the TPP team for a site. The PM typically distributes the team information package to the team early during Phase I efforts.

Technical Planning Team (Team)

The TPP process requires a multi-disciplinary team of personnel to represent the planning perspectives of decision-making, data use, and data implementation. The PM is responsible for ensuring that all TPP perspectives are represented within a multi-disciplinary team of personnel. On small, relatively simple sites, personnel implementing the TPP process may perform multiple roles and support multiple perspectives. In general, several disciplines of technical and legal personnel will collaborate to represent each of data user and data implementor perspective for a site. The team is identified during Phase I and works together throughout the TPP process and execution of the work.

Technical Project Planning (TPP) Process

This manual presents the TPP process for designing data collection programs at HTRW sites. The TPP process helps ensure that the requisite type, quality, and quantity of data are obtained to satisfy project objectives that lead to informed decisions and site closeout. The four-phase TPP process is a comprehensive and systematic planning process that will accelerate progress to site closeout within all project constraints. The TPP process can be used from investigation through closeout at small, simple sites, as well as large, complex sites. The TPP process is a critical component of the USACE quality management system that meets the American National Standard for planning the collection and evaluation of environmental data.[19] Appendix D provides an outline of the activities within the TPP process.